## REMARKS

In the present Amendment, Claim 13 has been rewritten in independent form and further amended to recite that the nanoparticles have a particle size distribution with a coefficient of variation of 20% or smaller. This amendment is supported by the specification, for example, at page 7, 3rd full paragraph. Claims 5-12 and 14-18 have been amended to depend from Claim 13.

Claim 19 has been added. Claim 19 is supported by the specification, for example, at page 14, lines 5-6.

Claim 1 has been canceled. Claims 2-4 have previously been canceled.

No new matter has been added and entry of the Amendment is respectfully requested. Upon entry of the Amendment, Claims 5-19 will be all the claims pending in the application.

## I. Response to Rejections Under 35 U.S.C. § 103

In Paragraph No. 3 of the Office Action, Claims 1, 3 and 5-18 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ichihara et al. (U.S. Pat. No. 5,889,756), in view of JP 62-270386 ("JP '386"), Iida et al. (U.S. Pat. No. 5,456,961), Murray et al., "Synthesis and Charachterization of nearly monodisperse CdE...", J. Am. Chem. Soc., Vol. 115(19), pp. 8706-15 ("the Murray et al article") and JP 62-125550 ("JP '550"). Further, in Paragraph No. 4 of the Office Action, Claims 1, 3, and 5-18 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ichihara et al., in view of JP '386, Iida et al., the Murray et al. article, and JP '550, further in view of Maeda et al. (U.S. Pat. No. 5,187,052).

Applicants respectfully submit that the present claims are patentable over the cited references for at least the following reasons.

As explained in the Remarks of the Amendment filed February 10, 2005, Iida et al. is directed to a binary system, which is apparently different in structure from a three-way or greater system. Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to prepare a dispersion of a three-way or greater system of metal chalogenide nanoparticles by using the process of Iida et al. That is, there is no motivation to combine Iida et al with other cited references.

The Examiner appears to consider CdSSe described in Iida et al. to be a three-way system. Applicants respectfully disagree. Specifically, in CdSSe, Cd is an element of the group 2B, and both S and Se are elements of the group 6B of the Periodic Table. As Applicants pointed out, the binary system of Iida et al. contains: (i) at least one element selected from the group consisting of the elements of the groups 2B and 3B; and (ii) at least one element selected from the group consisting of the elements of the 2nd to 5th periods of the groups 5B and 6B of the Periodic Table. See page 8 of the Amendment. Therefore, although CdSSe contains three different *elements*, it still falls within the definition of the above-described binary system.

In addition, present Claim 13, from which Claims 5-12 and 14-18 depend, primarily or secondarily, recites that the nanoparticles have a particle size distribution with a coefficient of variation of 20% or smaller. On the other hand, Ichihara et al. relates to a sputtered film, which is completely different from the presently claimed invention. It is difficult to control particle size distribution by sputtering. Accordingly, sputtering has disadvantages of difficulty in achieving "mono-dispersed" particles.

Furthermore, in an optical disc of phase-change type, recording is performed by making use of the difference in reflectance when the particles in the recording layer assumes a crystalline state or an amorphous state, whereby, if the variation of particle size is large, the shift to the amorphous state caused by a laser beam fluctuates. Namely, some particles completely shift to the amorphous state while others do not, thus increasing noise and deteriorating the S/N ratio (i.e., signal to noise ratio).

With a sputtered film, regulation of particle size is quite difficult. The sputtered film is made particulate by co-sputtering another material which segregates to give rise to particle boundaries. Though particle size regulation is possible to some extent, the aforemontioned technique is utterly insufficient to achieve a mono-dispersed system. In contrast thereto, in chemical and liquid-phase methods, it is easy to control the reaction system, thus the synthesized particles can form a mono-dispersed system far more easily compared with those obtained by sputtering.

In the presently claimed invention, a liquid-phase synthesis, which is called a hot soap process, is adopted. After the synthesis of particles, the particles are purified, and mixed with a binder. By coating the resultant mixture, a recording layer comprising mono-dispersed particles (with a small coefficient of variation) is obtained.

In view of the foregoing, Applicants respectfully submit that the present claims are not obvious over the cited references and thus the rejections should be withdrawn.

## II. Response to Advisory Action

In the Advisory Action dated September 9, 2005, it was indicated that the recording layer composition limitations are considered as product-by-process limitations and not required in the claimed process for optical recording.

Applicants wish to explain the material differences between the recording layer made in the presently claimed process and those in the prior art as follows.

Both Iida et al. and Ichirara et al. disclose a sputtered layer. As set forth above, in the method for obtaining a granular layer by sputtering, not only main components but also other components having no effects on recording/erasing are co-sputtered and the other components are segregated so that it is difficult to have a small coefficient of variation of particle size distribution.

Applicants believe that when recording/erasing is carried out with laser having constant energy in a recording layer containing particles having a wide range of sizes, recording/erasing may be incomplete in all of the particles, thus, noise occurs and the recording medium having a small S/N ratio (signal to noise ratio) is obtained.

Thus, it is very important that a recording medium has a small range of particle sizes.

In the sputtering method, the main components and the other component are co-sputtered as described above, so that sea-island structure is formed and the granular particles are formed. In that case, the sea-island structure is formed in the course of nature so that the particle size distribution cannot be controlled. As a result, "the particle size distribution with a coefficient of variation of 20% or smaller" cannot be obtained. Applicants believe that it is common

knowledge for one of ordinary skill in the art that a small coefficient of variation cannot be obtained by the known sputtering method.

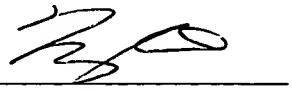
In contrast, in the presently claimed invention, the nanoparticles are formed by the liquid phase method in the presence of compounds so that the particle sizes can be controlled and "the particle size distribution with a coefficient of variation of 20% or smaller" can be achieved.

## III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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